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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,285	09/11/2003	Masayoshi Iwase	242506US2 DIV	5572
22850	7590	07/18/2007		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER MARTIN, ANGELA J	
			ART UNIT 1745	PAPER NUMBER
			NOTIFICATION DATE 07/18/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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**Office Action Summary**

Application No.

10/659,285

Applicant(s)

IWASE, MASAYOSHI

Examiner

Angela J. Martin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-6 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-6 and 16-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/11/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/741,069.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

This Office Action is responsive to the Amendment filed on April 10, 2007. The Applicant has amended claims 3 and 16; and canceled non-elected claims 7-13 and 20. However, the rejection is made final for the following reasons of record.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 3 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Lorenz et al., U.S. Pat. No. 5,646,852.

Rejection of claims 3 and 16 drawn to a fuel cell system.

Lorenz et al., teach a fuel cell system, having fuel cells, which receive a supply of a gas and generate electric power (col. 2, lines 3-15) to satisfy a load (col. 1, lines 29-48), and a secondary battery, which accumulates electric power therein and outputs the accumulated electric power, said fuel cell system supplying at least one of the electric power generated by the fuel cells and the electric power output from the secondary battery to a load (col. 2, lines 17-21), said fuel cells system comprising: a gas flow rate-

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relating quantity measurement unit configured to measure a gas flow rate-relating quantity, which relates to a flow rate of the gas supplied to said fuel cells (col. 1, lines 33-37); and a control unit configured to specify a working point associated with an output electric current-output voltage characteristic of said fuel cells corresponding to the measured gas flow rate-relating quantity, to determine a first amount of electric power to be taken out of said fuel cells (col. 2, lines 46-51), which is required to activate said fuel cells at the specified working point, to determine a second amount of electric power to be supplied to the load, and to regulate at least one of the electric power to be output from the secondary battery and the electric power to be accumulated in said secondary battery, based on the first and second determined amounts of electric power (col. 2, lines 52-55). Lorenz et al., teach a means for specifying a working point associated with an output electric current-output voltage characteristic of said fuel cells corresponding to the measured gas flow rate-relating quantity, for determining a first amount of electric power to be taken out of said fuel cells (col. 2, lines 46-51), which is required to activate said fuel cells at the specified working point, for determining a second amount of electric power to be supplied to the load, and for regulating at least one of the electric power to be output from the secondary battery and the electric power to be accumulated in said secondary battery, based on the first and second determined amounts of electric power (col. 2, lines 52-55).

Thus, the claims are anticipated.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-6 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lorenz et al., U.S. Pat. No. 5,646,852, in view of Azuma et al., JP 07-240212 (machine translation).

Rejection of claims 3-6 and 16-19 drawn to a fuel cell system.

Lorenz et al., teach a fuel cell system as described above.

Azuma et al., teach a fuel cell system in accordance with claim 3, further comprising: a state of charge sensor configured to measure a state of charge of said secondary battery (abstract), wherein said control unit regulates at least one of the electric power to be output from said secondary battery and the electric power to be accumulated in said secondary battery, based on the measured state of charge in addition to the first and second determined amounts of electric power (0007). A fuel cell system in accordance with claim 3, wherein said control unit specifies a point of highest energy conversion efficiency on the output electric current-output voltage characteristic as the specified working point (0013). A fuel cell system in accordance with claim 4, wherein said control unit specifies a point of highest energy conversion efficiency on the output electric current-output voltage characteristic as the specified working point (0019-

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0020). A fuel cell system in accordance with claim 16, further comprising: means for measuring a state of charge of said secondary battery, wherein said means for specifying regulates at least one of the electric power to be output from said secondary battery and the electric power to be accumulated in said secondary battery, based on the measured state of charge in addition to the first and second determined amounts of electric power (abstract). A fuel cell system in accordance with claim 16, wherein said means for specifying specifies a point of highest energy conversion efficiency on the output electric current-output voltage characteristic as the specified working point (0019-0020). A fuel cells system in accordance with claim 17, wherein said means for specifying specifies a point of highest energy conversion efficiency on the output electric current-output voltage characteristic as the specified working point (0019-0020).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to insert the teachings of Azuma et al., into the teachings of Lorenz et al., because the state of charge sensor would provide "improve the fuel consumption efficiency by properly selecting the output of a fuel cell to charge a secondary battery based on the charged state of the secondary battery" (Azuma et al.).

### ***Response to Arguments***

5. Applicant's arguments filed 4/10/07 have been fully considered but they are not persuasive. Applicant argues "Lorenz et al. is directed to a fuel cell working alone to provide power to a vehicle. There is no battery provided to supplement the fuel cell..." However, the battery in Lorenz et al. is necessary in order for the fuel cell to start up

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and provide power to the vehicle. Applicant argues "Lorenz et al. also fails to specify a working point associated with an output current/voltage characteristic of a fuel cell corresponding to a measured gas flow rate relating quantity,..." However, Lorenz et al., teach "control unit 12 receives, via electrical lines, information on the instantaneous actual value m.sub.act act of the air flow rate, the operating state of the drive unit 17, the voltage U produced by the fuel cell 1 and the corresponding current I. This information is processed in the control unit 12 and is used to generate control signals for the current controllers 11 and 18, the valves 3 and 14 and the starter motor 9. These control signals are, in turn, transmitted to the individual components via appropriate lines." (col. 2, lines 36-45). Applicant argues that "it would not have been obvious for one skilled in the art to draw a teaching from Azuma et al. for providing Lorenz et al with a battery capable of satisfying a vehicle load. However, Azuma et al. teach the state of charge sensor would provide "improve the fuel consumption efficiency by properly selecting the output of a fuel cell to charge a secondary battery based on the charged state of the secondary battery."

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJM



PATRICK JOSEPH RYAN  
SUPERVISORY PATENT EXAMINER